



## Practice

### 2.4 Operations With Functions

Find  $f + g$  and  $f - g$ .

1.  $f(x) = 7x^2 + 5x$ ;  $g(x) = x^2 - 13$  \_\_\_\_\_

2.  $f(x) = 41 - 5x$ ;  $g(x) = 13x^2$  \_\_\_\_\_

3.  $f(x) = x^2 + \frac{1}{3}x + 9$ ;  $g(x) = -7x - 7$  \_\_\_\_\_

4.  $f(x) = -9x^2 + 6$ ;  $g(x) = 12x^2$  \_\_\_\_\_

Find  $f \cdot g$  and  $\frac{f}{g}$ . State any domain restrictions.

5.  $f(x) = 35x + 5$ ;  $g(x) = 5$  \_\_\_\_\_

6.  $f(x) = x^2 + 25$ ;  $g(x) = 3x + 17$  \_\_\_\_\_

7.  $f(x) = x^2 + 16$ ;  $g(x) = x^2 - 16$  \_\_\_\_\_

Let  $f(x) = -2x - 2$  and  $g(x) = x + 10$ . Find each new function, and state any domain restrictions.

8.  $f + g$  \_\_\_\_\_

9.  $f - g$  \_\_\_\_\_

10.  $g - f$  \_\_\_\_\_

11.  $f \cdot g$  \_\_\_\_\_

12.  $\frac{f}{g}$  \_\_\_\_\_

13.  $\frac{g}{f}$  \_\_\_\_\_

Find  $f \circ g$  and  $g \circ f$ .

14.  $f(x) = 3x - 2$ ;  $g(x) = \frac{1}{3}(x + 2)$  \_\_\_\_\_

15.  $f(x) = 4x$ ;  $g(x) = x^2 - 1$  \_\_\_\_\_

16.  $f(x) = -x^2 + 1$ ;  $g(x) = x$  \_\_\_\_\_

Let  $f(x) = 11x$ ,  $g(x) = x^2 - 5$ , and  $h(x) = 2(x - 4)$ . Evaluate each composite function.

17.  $(f \circ g)(-1)$  \_\_\_\_\_

18.  $(h \circ f)(-2)$  \_\_\_\_\_

19.  $(h \circ g)(2)$  \_\_\_\_\_

20.  $(g \circ h)(4)$  \_\_\_\_\_

21.  $(g \circ f)(0)$  \_\_\_\_\_

22.  $(f \circ h)(5)$  \_\_\_\_\_

23.  $(f \circ g)(0)$  \_\_\_\_\_

24.  $(h \circ h)(-1)$  \_\_\_\_\_

25.  $(f \circ f)(2)$  \_\_\_\_\_